

DRAGON

USER



The independent Dragon magazine

July 1988

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Editorial

WHAT an incredible opportunity — I stopped up practically everything with the name of news last month by going round the Great Show and phoning up half the Dragon world beforehand. Almost three-quarters of a page to three around this month.

I've done two things with it: one is to reproduce a universal Dragon User (you) which I hope readers with a variable opportunity will be able to display on a notepad or in a window. The other is to offer up a line for news reporting. Don't all feel over at once — it must be new news which we haven't had from primary sources, but think about it, find two lines of publishable news and you're paid for the stamp.

The Expert is tied up with exams for about three months, so if anyone else with a variable opportunity problem and a bit of know-how knows themselves as a columnist for a month, here's your chance. Send an outline if you don't want to write a feature or essay, to me, at Dragosoft.

If anyone else thinks we owe them a term Editor by the end of next week, please write. I'm still having a spot of better writing time after the move. What I need is a reverse Hooter — one which discards things I thought I had dealt with just as I discover I haven't. Now, about those questionnaires ...

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DRAGON PUBLICATIONS

Subscriptions
DRAG for 12 issues
Overseas (airmail) £10.00 (12 issues)
ISSN 0950-0737

Address: Dragon Publications, 41, Assen
on Road, Haverhill, Middlesex TW2 4HP
United Kingdom

Published by Dragon Publications Ltd

Dragon Publications Ltd

Typeset by Arial Limited, London SW1

Printed by Hestley Graham Ltd, Ashford,
Kent

Registered at the Post Office as a
newspaper. Dragon Ltd is a company
incorporated in England.

What's in this issue

The quality of the material on our Dragon User magazine has been excellent. It's a real pleasure to have such a high quality of material. It's a real pleasure to have such a high quality of material. It's a real pleasure to have such a high quality of material.

Adverts which are submitted to Dragon User for publication should not be more than 2000 characters long. The advertisement should be typed. Please note we have Dragon and a double space between each line. Adverts should be submitted to Dragon User for publication should not be more than 2000 characters long. The advertisement should be typed. Please note we have Dragon and a double space between each line. Adverts should be submitted to Dragon User for publication should not be more than 2000 characters long. The advertisement should be typed. Please note we have Dragon and a double space between each line.

We cannot guarantee to return every advertisement which is published. We please keep a copy of your advertisement if you want to see it. We please keep a copy of your advertisement if you want to see it. We please keep a copy of your advertisement if you want to see it.

Letters

This is your chance to air your views on cold facts, tips, complaints and computer-related news.
Page, Dragon User, 45 Avenue Road, London, Middle TW3 3EP

Old news in demand

It's a pleasure to give a brief summary of the contents of *Dragon User* for the past three and a half years as that I could only look ahead? I am particularly interested in features that I would like to read again.

R. Adams
28 Lanes Road
Pars
Widnes, Cheshire
WA9 4DS

Well, however, nobody in this office has ever done a complete index of *Dragon User*, for the very good reason that we never have time, but we know a man who has...

Pulse Software have published *Magazine for Dragon User*, which gives you a complete index of your fingertips, costs under a fiver, and is updated periodically. Far better than me to inform upon the fruits of their good work. Pulse can be contacted at 26 Fochell, High Compton, Stroud, Glos GL8 7ND.

We will pay for quality

I would like to agree with Ken Smith in the May edition when he says that he would be prepared to pay a higher price for some top class American software. I have been eager and selective there was anybody at present buying software from America and whether it was practical to do so.

Unfortunately it appears that there is very little being produced in the USA for the CoCo-2 which is the equivalent of our lovely Dragon. The main reason for this is the CoCo2, which has a far larger memory, and is therefore not compatible. I would love to be proved wrong on this matter.

It would be good to hear what would be interested in forming a collective to identify and commission the software. Could anyone indicate that as to what

Every month we will be putting out a general two, courtesy of our suppliers, to the readers who send the most interesting or entertaining letters. So send us your hints and your opinions, send us your fixations and suggestions. Send us your best Dragon stories. What if you think we are, mind readers?



We want articles on how to use software

Many thanks for *Dragon User*, a publication for which I might like to use some of the more complex programs. I am especially interested in the fact that you have spent so much time trying to get these running on our old software. I think that this good-will would be a very good reason for a more regular feature.

I am not tracking programs, but it is just the instructions only, programs that I do not need them. Maybe I should be a bit more up to speed on using the COCO programs which must be something not covered by the other sheets.

J. O'Leary 808 John Road,
Cromwell, Kent. SN8 1TS

Recently I have been the 'documentation officer' related to, succinctly and with such dignity. I am in total agreement, although I will say in defence of people who write computer manuals — that most of them deserve it — that really do occasionally come up with some very original questions. You know the kind of thing — how do I use my spreadsheet to do this? What if I can't get my spreadsheet to do this? And what about which one is the best way to use it? (Save the right too).

It is a little deep under a heap of paper at the moment, but he may find something to add to the source. Meanwhile, if anybody wants to write a definitive guide to using any of the major packages — please drop me a line and volunteer. I will pay you for your software and your experience. This is potentially a very useful angle, and one which I'd have liked to see on the front.

that this is possible or even legal on a group basis?

Finally, if any of the magazines still supporting the Dragon are considering bringing the import of such software, I would like to know that I am prepared to pay £10-£15 for good software.

Ken Burford
76 Marlton Road
Slough
SL6 6JH

WP at rest

WONDER again wonder! This morning I received the long awaited news about the Dragon User software. I have been

ing and cannot believe it is required. The most chip which most of the other computers (the CoCo, Intellivision) have are similar to the 6502 which provides three video and more with programmable on-chip video. I'm sure such a chip could be easily integrated. When I think of the cost of power supplies I say the most 70 graphics processor (a standard chip) I saw it reviewed in ETI it would provide graphics resolution capabilities of however I am still waiting about electronics as it is a today and I'm busy enough without it.

Thanks for clearing up the obscure dream' in the latest page. Concerning my video processor my Dragonvision on the bank, not in the word processor. When I look at a display I add my little as I am studying and a TV would certainly deliver my pictures of training over my head. I am sure it will be right about my being able — you tend to have a better idea of how to handle the application. I hope to have some more from I hope to have some more from the studio in three years time. (more)

So until I get back at a computer video-camera I will have to use a pen.

P. D. D. D.
170 Pinner Road, Court
Cottonwood, London
W10 3EP

SUCH dedication to an magazine to us all know do you live without *Dragon*? Your information was wrong about the 'typewriter' style, by the way, unless he means 'hand-writing' or 'handwriting'. Anybody who has received an editor's note in the letter will know what I mean.

Stand up and write

As a result of placing a letter in *Dragon User* about my new magazine *Dragon Codes* I received a great deal of feedback. In fact, some were from *Dragon* enthusiasts who didn't own a

Dragon: The Dragon world will be in a sorry state if artists refuse to contribute. However, magazines, but the actual users don't do anything. The only got out of a magazine what you put in. Know what you got out of the talents of the Dragon? Of course, Germany. Lots of it at this world, but too many of you. Dragon users are content to see your copy of Dragon the other every month without putting in a single effort into it. Without input magazines don't get published. Without subscribers, we're in trouble.

I love your library, and
will send requests for
more. I'm sure many
of them arrived.

Dragon Lager
70 Drinkable Road
Inverness
Dorchester BA3 4DT

WELL, I bet that shook a few of you out of your social spirituality magazines demand for another breakthrough.

DMG Entertainment doesn't allow no-food-back-and-ask questions. Dragon Logic reports that its active software still supply Dragon games, although they tell the Dragonmaster two years ago. They are at 3 Mineco, House, Collins Park, Aldermaston, Santa Rosa, ACW for execution.

64 columns with discs

THOSE of you who have a data drive connected up to your Origin server may have found that Pro! Internet can cause a communication (X) error between the client and the server. This error is not fatal but it means a data drive connection is compromised in the particular job. The graphics pages get moved up by 1000 bytes. Therefore, page size is adjusted at 3002 (4000-1000) page size is situated at 4002 (4000+2) and again up to page 4004. However, all is not lost. Because of the use of a few simple points the program can be made to work perfectly with a data drive connection.

POKE ANYOALLHOPOKE
ANYPS HOPOKE ANYMG
ANYOPOKE ANYOBS ANYO-
POKE ANYOCS ANYO

Also, given below is a sample basic program that will dump the whole structure of a network.

[illegible]

1990: 1990-1991, 1991-1992, 1992-1993, 1993-1994, 1994-1995, 1995-1996, 1996-1997, 1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-2100, 2100-2101, 2101-2102, 2102-2103, 2103-2104, 2104-2105, 2105-2106, 2106-2107, 2107-2108, 2108-2109, 2109-2110, 2110-2111, 2111-2112, 2112-2113, 2113-2114, 2114-2115, 2115-2116, 2116-2117, 2117-2118, 2118-2119, 2119-2120, 2120-2121, 2121-2122, 2122-2123, 2123-2124, 2124-2125, 2125-2126, 2126-2127, 2127-2128, 2128-2129, 2129-2130, 2130-2131, 2131-2132, 2132-2133, 2133-2134, 2134-2135, 2135-2136, 2136-2137, 2137-2138, 2138-2139, 2139-2140, 2140-2141, 2141-2142, 2142-2143, 2143-2144, 2144-2145, 2145-2146, 2146-2147, 2147-2148, 2148-2149, 2149-2150, 2150-2151, 2151-2152, 2152-2153, 2153-2154, 2154-2155, 2155-2156, 2156-2157, 2157-2158, 2158-2159, 2159-2160, 2160-2161, 2161-2162, 2162-2163, 2163-2164, 2164-2165, 2165-2166, 2166-2167, 2167-2168, 2168-2169, 2169-2170, 2170-2171, 2171-2172, 2172-2173, 2173-2174, 2174-2175, 2175-2176, 2176-2177, 2177-2178, 2178-2179, 2179-2180, 2180-2181, 2181-2182, 2182-2183, 2183-2184, 2184-2185, 2185-2186, 2186-2187, 2187-2188, 2188-2189, 2189-2190, 2190-2191, 2191-2192, 2192-2193, 2193-2194, 2194-2195, 2195-2196, 2196-2197, 2197-2198, 2198-2199, 2199-2200, 2200-2201, 2201-2202, 2202-2203, 2203-2204, 2204-2205, 2205-2206, 2206-2207, 2207-2208, 2208-2209, 2209-2210, 2210-2211, 2211-2212, 2212-2213, 2213-2214, 2214-2215, 2215-2216, 2216-2217, 2217-2218, 2218-2219, 2219-2220, 2220-2221, 2221-2222, 2222-2223, 2223-2224, 2224-2225, 2225-2226, 2226-2227, 2227-2228, 2228-2229, 2229-2230, 2230-2231, 2231-2232, 2232-2233, 2233-2234, 2234-2235, 2235-2236, 2236-2237, 2237-2238, 2238-2239, 2239-2240, 2240-2241, 2241-2242, 2242-2243, 2243-2244, 2244-2245, 2245-2246, 2246-2247, 2247-2248, 2248-2249, 2249-2250, 2250-2251, 2251-2252, 2252-2253, 2253-2254, 2254-2255, 2255-2256, 2256-2257, 2257-2258, 2258-2259, 2259-2260, 2260-2261, 2261-2262, 2262-2263, 2263-2264, 2264-2265, 2265-2266, 2266-2267, 2267-2268, 2268-2269, 2269-2270, 2270-2271, 2271-2272, 2272-2273, 2273-2274, 2274-2275, 2275-2276, 2276-2277, 2277-2278, 2278-2279, 2279-2280, 2280-2281, 2281-2282, 2282-2283, 2283-2284, 2284-2285, 2285-2286, 2286-2287, 2287-2288, 2288-2289, 2289-2290, 2290-2291, 2291-2292, 2292-2293, 2293-2294, 2294-2295, 2295-2296, 2296-2297, 2297-2298, 2298-2299, 2299-2300, 2300-2301, 2301-2302, 2302-2303, 2303-2304, 2304-2305, 2305-2306, 2306-2307, 2307-2308, 2308-2309, 2309-2310, 2310-2311, 2311-2312, 2312-2313, 2313-2314, 2314-2315, 2315-2316, 2316-2317, 2317-2318, 2318-2319, 2319-2320, 2320-2321, 2321-2322, 2322-2323, 2323-2324, 2324-2325, 2325-2326, 2326-2327, 2327-2328, 2328-2329, 2329-2330, 2330-2331, 2331-2332, 2332-2333, 2333-2334, 2334-2335, 2335-2336, 2336-2337, 2337-2338, 2338-2339, 2339-2340, 2340-2341, 2341-2342, 2342-2343, 2343-2344, 2344-2345, 2345-2346, 2346-2347, 2347-2348, 2348-2349, 2349-2350, 2350-2351, 2351-2352, 2352-2353, 2353-2354, 2354-2355, 2355-2356, 2356-2357, 2357-2358, 2358-2359, 2359-2360, 2360-2361, 2361-23

DOI: 10.1002/for

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DOING PRINTED CHRS(27)
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  (27) A CHRS(100) FOR
  L=255 TO 3 STEP -1000
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  (27) A CHRS(100) CHRS
  (27) FOR CHRS=L-1 TO 10000
  T=3 S=3 FOR M=3 TO 3
STEP: P=PRINTED CHRS
  T=T+1 S=S+1 M=M+1
NEXT M S=S+1 CHRS
  (27) CHRS(100) NEXT L
  THE PRINTED CHRS(27)
  CHRS(100) CHRS(27)

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Friday, May
 Three Days
 (Student Film Competition)
 Saturday
 June 14th, 2014

Gemini Database

I have recently purchased *Illustration's Designer's Kit* and a copy of *Online Marketing's Database* program came with it. However, the previous owner had lost the instruction manual and although I can load the program, I cannot seem to find out how to return to the main menu display after entering records.

Can anyone who has the program helped with the problem? I would be very grateful if they could Ofcourse a photo copy of the instructions would be even better and I would pay the postage costs

It was dried immediately at 320°C under reduced pressure and in presence of nitrogen flow. Once the solid (green and transparent) cooled:

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Address: 1000 University
of Kentucky, Lexington,
Kentucky 40506
U.S.A.
Phone: 606/257-2200

Seikosha shortage

COULD you or any of the Chicago-area readers who are? I have a Berkeley EP 100 A. Reader and I need a ribbon

Unfortunatly for it I have looked in all the likely shops in my area and have drawn a blank. If anyone can tell me where I can purchase the above and at which price I would be very grateful.

88 Broadway
 88 Longfellow Drive
 Boston
 02118
 Telephone: 617-552-1000

Any news of good deals gratefully received. Have you tried *GetSoftware*? Their representatives, by any chance? Any decent computer shop ought to be able to tell you where to get in touch. Or try *Harry Whitehouse* on 0434 344400.

Tandy traps with extra bytes

the PCI-6014H is a descendant of the Pteridy card operating system with interest, but even that same people may be confused (as was I) by the following: In all the 330 (bytes) in each sector in the fixed apparently arbitrary sequence of 100 170 40s etc. at the beginning and end of each sector (described by Enc as system control bytes) are part of the standard double-density format (fixed System 34 format), most disc controller chips (including the Western Digital 2087 used in the Dragon) expect this sequence starting right from the very 1st data byte in the Cyl. The only time this sequence has to appear is when the disc is in Cyl 0 and when the disc is in Cyl 0, it is in Cyl 0.

And then there's the gun — does a reliable replacement of Randy DODS cartridges (does it even exist, just what is it designed for?) — General's are Springfield, part 66643, from the USA. And need a DODS cartridge to suit with them — but are finding that the suppliers use Randy's. It has to fit, of course.

Book 1111
St-Germain Abbey
Thamesbury
Wiltshire
AD 1086

who sent in copies of information about the Oregon Professional Oven. If I can't comment on each one personally, be assured they are being read and thoughtfully discussed.

A current issue once

While looking through some of my old electronic magazines, I happened to glance at the name of the editor of an ancient (March 66) edition of *Electronics Monthly*. The editor is one Helen P. Armstrong. Would this Miss Armstrong be the same as our favorite author?

Dr. J. S. Goss
University of Utah
Minneapolis
Albuquerque
Casper
Cedar River

DELETED what your laptop
file editor or, above ... I'm
on, which are you mean,
... ..

Draws a correct line

(ID line to Frank Rob and) are
Thanks for their (Original)2008
Interviews in StarHub (or
Alternately as I appear to
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PSET or PROSET will draw a
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(previously specified) to the
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to remember and some state
data last impression, must

Another point is that some may find useful as that the Dragon allows single users to run a range of applications simultaneously (namely two 10) without the need for dual booting.

Finally, Bartles knew he was in the office started out my late February/June. I had by arrived and after the March began in that some sort of account.

Phil Hart-Darynau
 IT Consulting Director
 Information Technology
 Associates
 Austin, TX

1000

News desk

If you keep any new proposals for the Dragon — software or hardware — submit your press release

As most other forward news in the Dragon world was reported in the aftermath of the Ocean Show (our last issue's issue of Dragon User) there are no grandiose announcements to report this month. George Schreiner are continuing to extend their range of bus software (Dragon Series in The South, Star Road, Road & Carry, Accounting, General MFP, SDR). They usually have an up to date sheet with a guide to available formats on a card can sometimes supply advice letters to order. Herold Neumann of the Sieghard Computer Gruppe reports having seen an advertisement for Dragon data for 585 at California Digital 17700 Figueroa St. Carlsbad, California CA 92008 USA. Write to California Digital for information and possible changes. The Sieghard Computer Gruppe publish an AG magazine in German and can be contacted care of Herold at Dase-Druckerei-Gesellschaft 25, D 85241 Hainbuchheim am Rhein / Bundesrepublik Deutschland.

Why an ad?

Below this column you will see what looks as if should look very much like an advertisement for Dragon User. So why are we advertising in our own pages? And what has this to do with you?

Stick 'em up

The answer is very simple. Major press advertising costs add up to a entire budget in a couple of days, but we have a way of getting it's advertisement into a few thousand copies and that is via a few thousand readers. Many community buildings, clubs and villages have noticeboards or advertising boards where special interest notices can be displayed sometimes free sometimes (as in the ubiquitous newspaper's window) for a low price a week.

We are not demanding that you call up your Dragon User! Most libraries have photocopies which will make a good help for 10p. Copy to press more expensive, at around 10-15p for a single copy. Or you may have access to a friend or colleague's copy.

There are other things you can do as well. Write a letter to your local newspaper or community magazine or to another computer magazine or general interest magazine or national newspaper (aiming for the computer club page if there is one) and simply let it sit in their offices. And it is an independent, not profit-making publication supporting the Dragon and 5809 community and where people can focus

Reporters, please

NOW something or return if you have your hands on any current news which is worth read to the Dragon. Tandy and 5809 world and it to the editor marked NEWSDESK and if we can we will pay you 10p a printed line (or £1 per line) and give you a copy.

The news must be reasonably current and must not involve any business or private material of your own or a colleague. Please include your source where possible. If you draw our attention to a source without other publications, so that we are able to follow the lead and verify it ourselves, we will pay half the charge above. Payment is published in the magazine only that same first arrival date of postmark. We do not use material drawn from press releases which we subsequently receive from the same source unless they arrive after we have published. Replies to readers' letters and non-Dragon specific press information will be accepted as news. All copy will be edited as necessary and the editor's decision is final.

Of course, if you have a product, idea, group or other Dragon related activity you want mentioned on your own behalf, we will publish it as usual if you submit press release to the Newsdesk. Copy date is around the 15th of the month every month.

FOR THE DRAGON COMPUTER

DRAGON USER

is the only independent, professionally-produced magazine for Dragon 32 and 64, Tandy Colour Computer and 5809 users in the UK and Europe.

Published monthly, Dragon User carries information features on programming in Basic and machine code, utility and entertainment programs, game and adventure playing, hardware projects, reviews of new software and hardware, answers to technical questions, and a monthly competition.

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& TANDY COCO

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The Expert will be back later in the year at regional seminars to contribute their deeper thoughts on the three points of attack games in

28994	080201230416389448666066	+2276	31422	04009448954932624277948	+1799
28995	02080430032907002573364	+1843	31423	01494102827016112864687	+1446
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29003	07994467902086316687610	+1366	31521	002000487876104666666667	+2663
29004	06030308703000100790300	+1297	31532	0666602466000000000000	+2032
29015	07030606020707619172136	+1592	31543	07999425049994250499942	+2162
29026	06000004002004389490000	+1794	31554	000499802200000000000079	+2279
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29048	047000970466000019213819	+1356	31576	060002300902544666666667	+1606
29059	01718032004100119346666	+1946	31587	078049798002866666666667	+2113
29070	06020000047023881111695	+906	31598	060004180370000000000000	+1946
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29103	077000070717030000001131	+1026	31631	034004025010949999994419	+1586
29114	02167049002946679030793	+1877	31642	010004025004999999999999	+1964
29125	007030094797879150000000	+1979	31653	064601983838383838383838	+0633
29136	004040000000000000000000	+1965	31664	002000004330000000010004	+2433
29147	060000010000000018220000	+0667	31675	034033500000000000000000	+1446
29158	077231700023900410180796	+1993	31686	060180003338888833888888	+1946
29169	00001116079001190330000	+0832	31697	064310000000138884747070	+2675
29180	050044666666666666666666	+1874	31708	010000000499999999999999	+1979
29191	0602685017389039004100113	+1936	31719	061600000404040404040404	+1496
29202	0270731000270001000270001	+1626	31730	060070440000000070200000	+0676
29213	060270000040007000000000	+1851	31741	060703004100007010000000	+1982
29224	000707000000000000000000	+2187	31752	020000001000700198180007	+0666
29235	07020000194007000700000	+1608	31763	060031000040444444000000	+1967
29246	06000097040007000193076	+1967	31774	040000000400000000000000	+1877
29257	091070701996666666666666	+0666	31785	050000000000000000000000	+1210
29268	0602000000002170043474	+1648	31796	050000000000000000000000	+1246
29279	017070220000000000000000	+1446	31807	050000000000000000000000	+1189
29290	040040000001600000000000	+1189	31818	040023000000000000000000	+1836
29301	000000070505000000000000	+1094	31829	040004000000000000000000	+1256
29312	060000794300000000000000	+1079	31840	060004100000000000000000	+1318
29323	060000000000000000000000	+1666	31851	060000000000000000000000	+0640
29334	040000000000000000000000	+0938	31862	060000000000000000000000	+1

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32 115 + 82748C1E1F8428C8818F2F = F0D
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32 291 + 7C718C7C1888881888888888 = C484
32 302 + 588C4C832C38888888888888 = 128C
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32 489 + 188878C888888888888888888 = 28C3
32 500 + 888888888888888888888888 = 288C

Crossword

Please get your answers to the Dragon Crossword Department by the end of the month on the back cover.

The eighth Dragon Crossword came again from the bottom of a tea chest, a little crumpled but none the worse — oh, my mistake, that's the editor! The sixth Dragon Crossword is spoken in forked Saxon by St. Wright of Dunelm, who would live Perpetua's Ascense Day, as there's no point in asking for anything less than the best, is there? And for Ardalan of Charley Wood, who would like anything! haven't got you as long as it's good. The phrase is **888C LANDLAD88**.

There will be a couple of first tipes from the Editor's Magic Mathematics Box for the first correct or first out of the hat each month. You can try taking on which tipes you'd like — you haven't know we may have them.

And you don't have to set up your Dragon User — unless you a phrester or a plain piece of paper will do.

1. Side by side — I snap out a (five-cotted mought) (18)
2. Named a course with nothing on — stroll an after-sailors. (7-4)
3. At one again — play with long one and a five. (8)
- 4 and 5. Puzzle about the celebrity from Inghemala? (12-4-6)
6. A rejected edger by Medusa Peter (5)
7. Given an lead as invaders. (8)
8. Subterranean (santa's) looking to a terrible later (12-4)
9. What the Union soldiers called the Confederates (10)
10. Third a tages came at German POW camp. (8)
11. Love a vulgar enter (18) with that (7-4)
12. Got no rank confused, had badly as it where no man. (10)
13. Remembrance TWT? — His letters left all around him. (10)



by Terry and Derek Probyn

All this month's answers are names of Dragon software. When the crossword is complete, the column marked with an arrow will spell out a phrase.



By no means just your average Zap

Programs: Lucid's Kingdom
Groupware Change Software
Inc., millicom.com.

This debate on the cassette box is just one of the little bits of games — only misunderstanding not it shows the forward head of a cartoon. At first glance, the top panel shows a roll of cassette tape (shouldn't you games? And is not described as such on the cassette tape) but this is easy to learn the whole truth. Although my two sons (and even myself when I first played it) took it as a game tape — games. This should be played more like a graphic adventure game. By that I mean that you have to plan out your actions and not just reactively shoot at the badies.

There are other objects which can be shot, and greater scores can be achieved by destroying some of these things. The most important of these are the crystals which are placed under chandeliers on the screen and gradually appear to the characters as they shot away. They can then be collected by flying over them and a certain number are needed before you can progress from one region of an planet to the next.

One thing you cannot do, however, is to forget about the bedbugs in your quest for

[illegible]

If your strap is destroyed then you start from that point and are not required to be beginning which I personally prefer. Besides, though if you have not got past the last of the bookends which you were fighting when you were destroyed, as you will then be attacked by the same type again at the next incident. If you get too low and it has not yet become red a way of getting more through you appears to have unlimited fuel and acceleration.

[illegible]

It would not surprise me if this game caused some controversy in the market at FA. After all, it might appear as if it appears that you have shot straight at the enemy without flanking it, but this is caused by parts of the screen which can be shot over and over again, erasing points but which reverse as you hit them the first time, you can fire through them at the enemy, but not when they have turned round. Also there is a slight problem in the last button as

the left joystick, which is the one that you use in the game, will not move when the right joystick is controlled by its counterpart. At times there's so much happening in the screen that you may not notice some of the enemy bullets which come in all directions.

Alcohol bullets appear to be limited out of fairness, and not really from the fact—don't see what I mean when you play it. Another thing which changes is that I say Player 1 is not split half some of the screen with your score alongside it and as yet have been unable to access a two-player game as an alternative. All that this is a game which I really enjoy playing and will not be enjoyed by those of you who like your own solitary people will say that it is too similar to Oregon. But I have found that the two games need completely different tactics and enjoy playing both. I would have liked to have given this program two Oregon, but hesitate to give the maximum to one game I have not completed. The rest of the game tracks the same high standard it is certainly worth a try.

[illegible]

Find an enemy in your inventory

Program: Offerings of
 Shipping: Freight Services
 (Below 1000)

THIS is an old adventure originally released by Maxis Software (acquired EMI), and now hosted by GIGAWATT. Loading is usual from GIGAWATT, is very slow and the loading screen is not very impressive.

However, when the adjustments are loaded, you are treated to what must be one of the best screen presentations of any adware. The text is set out on an old piece of parchment and scrolls nicely up the screen as inputs are made. The drawback to this is that if you forget your surroundings, "LOOSE" has to be typed to exit.

told you of the history. The instructions state that input can be in sentence form, and I find my quote a little bit more than slightly confused "There's a thing AND do another" is what? The word THEN has to be used between the two

Thompson told me very loudly as I played it more and more, though you have to be careful with your inputs as you have to wait for the computer to go through the two automatic actions before you can make another move. Another touch I liked very much was the automatic putting of a capital to the first letter of your input and small ones to the others. This generally gives it a very polished, automatic, serious and intelligent appearance.

pleasing to the eye. This is an obvious sign that 1950s words are understood, and I must say that I got less — I don't understand it," they said.

As for the storyline, you play the part of an explorer trapped initially in a cage over a pit of scorpions protruding, and are forced to learn and then escape. There are some nice touches during the adventure and nothing too outrageous for you to have to do in order to escape, although you are presented with some ticklish situations. As for a few things, less careful use of what is at each location. There is a tape-woman at one location and I returned to this location having completed another task and no evidence was

middle of her mission, I did what is expected and I do behold she was there. Be careful not to dwell in certain locations, so I have lost my life the very several times. The story has a very outstanding setting and some very awkward problems which can however be solved logically. One major drawback is that the track key is not disabled, and I have completely lost the game several times and I have to admit that I'm one of those people who rarely saves their positions in an adventure game. (The search key = **W**.)

Table 1



Memory and assembly

Pam D'Arcy maps assembler tools into the Dragon's memory

FIGURE 1	MEMORY USAGE WHEN ASSEMBLING	YOUR FIGURES
40000	System workspace (A) 100000 bytes	
40400	Text screen (B) 10000 bytes	
	DragonDOS type disk system workspace (C) 100000 bytes	
40800	Graphics screen pages (default at startup are 17.5 pages @ 80000 bytes) (D) 100000 bytes	
41000	Basic program area (actually starts at 41001) (E)	
	Basic program array/ variables area (grows as required to higher addressed memory) (F)	
41F00	System hardware stack (grows as required to lower addressed memory) (G)	
41F0F	Basic string data stack (unsegmented values of least CLEAR statement) (H default 80000 bytes)	
41FFF	Reserved machine code area (unsegmented value of least CLEAR statement) (I)	
	DosDiskDOS disk system workspace (J) 100000 bytes	
40000	Basic Interpreter ROM (K)	
40000	Cartridge area (ROM) (L)	
40000	Previously unused area beyond end of cartridge software (ROM) (M)	
41F00- 41FFF	System workspace (N)	

WHEN at this stage a reader has the nerve to admit that he still hasn't managed to assemble anything even though using the assembler software in the machine code writer, one cannot help but feel that he cannot be alone and something should be done about it. As for other queries have been concerning memory so it seems right to give a rundown.

Unmodified Dragons have 65536 or divided accessible memory locations — bytes, usually identified by referring to them as having memory addresses (the postal addresses) (0 through 65535). One Dragon 32 apart from 32k bytes or addresses 65536 blocks (the top half of memory addresses 32768-65535) can be coded as: `word = P0-16k` but rather like removing the piece of glass from the spine of a cassette tape want a long-overwritten, it is made of material that cannot be overwritten (=ROM Read Only Memory). Corruptable memory is known as RAM (Random Access Memory). But when on a Dragon 64 gives an identical memory might be 32 (including the ROM). There is further comment on the 64 at the end of these listings.

All into memory

I am only really familiar with one assembler (Dragon) so some of the following comments may not be applicable to your software. However, generally, there are two phases. Understanding the test (source code) as, in the nature of editing a basic program. There will usually be a BASIC/DOS translator and generally is converting the test (source code) to machine language (=machine code/library code). There may be a test binary code/library test in to your assembler or if using an assembler like Dragon, you put the program and/or test in your program or library/library code (CONVROM or object/library code).

Traditionally assembly over needs to be able to fit into memory the assembler programs and to outspace the source code (=test) and the resulting machine code (=object/library code).

The assembler workspace will include what is known as a symbol table or list that is created while the source code is being converted to object code. The symbol table contains all the names that appear in the label column of the test and the memory address/value that the assembler has worked out (=assigned) for a that are subsequently used in the resulting object code.

All these components of assembling (test, test, object code) are of memory — if they start splitting into each other, corruption will occur either before the assembler program itself has been over-

written or because overwriting of the symbols table/labels/offsets table while assembling will give undesirable results and almost certainly corrupt data code. These areas also need to be kept clear of system workspace including offset addresses, to avoid collisions such as data corruption caused by inadvertently overwriting data.

Figure one shows a memory map split into sections labeled A, B for reference. Just do not use them lightly for your system on the right hand side of the chart. Note that sections (C) and (D) are only present if a disc cartridge is attached and only one of them is then selected depending on whether the DOS software being used is DeltaDOS (A) or other — DragonDOS. Current SuperDOS utilizing the same workspace area (G). Both types of system use the same length of workspace (6400 bytes) and addresses of areas proceeding following on from them respectively are suitably adjusted.

The documentation of your assembler should give an indication of where in memory real (source code) object code and possibly its workspace (including the symbols table) are stored. With some assemblers the real (source code) is made to appear as a basic program or source code pointers to the code base is determined. If you are using an assembler written in Basic, it may well be that generated object code is stored in the graphics page memory as this is asked to move on appropriate CLEAR statement before continuing (or one may be declared within the assembler program itself).

Dream's reply

The following is with specific reference to Dream and is answer to queries arising from its users (private email).

All personal Dream are machine code programs supplied with documentation that includes a memory map for the version purchased. If the Dream cartridge is being used, the cartridge is plugged into the machine, it switched off and then not switched on a games cartridge. Dream is not activated until the appropriate EXEC has been typed in. Before using the cartridge or loading in a cassette or disc version of Dream, a CLEAR command needs to be typed in to reserve memory for the Dream program itself (if not on cartridge) its workspace and its symbols table/offsets table area. Current and disc version of the Dream program are loaded into the highest free area of memory that it can be accommodated in (provided DelaDOS workspace for such systems).

I can't remember if I had been inconsistent in my articles in that some mention after CLEAR 800 80000 address others say after CLEAR80000H1000. The amount of memory cleared has nothing to do with the version of Dream being used but the amount of workspace reserved. I was using reserved figures and tried to use 80000 (which is 84479) if typing in a memory value in decimal and 4H0000 (20480) if using hex. I intended to use hex more often as assemblers are hex based (I

FIGURE 2 AFTER CLEAR200,8H0000

84737	System hardware stack (G)
8473D	Basic string data (H)
85000	Reserved machine code area (I)
	Inc DeltaDOS attached (J)
86000	Basic interpreter (K)

FIGURE 3 DREAM WORKSPACE ANALYSIS

85000	Not used
85001	Object code Options as required to higher addressed memory
	Symbols Table (Starts at lowest address end of text area and grows as required to lower addressed memory)
850FF	Text (source code) statements (Starts at address 850FF and grows as required to lower addressed memory)
85C00	Other reserved Dream workspace (always 8200 bytes long)
85E00	32K DREAM program
END	
(C) Pat & ARC 20MAR88	

mean) that 820000 bytes years ago on a calculator was a pretty big number and money well spent. They are still readily available at that sort of price — the value for text/code/data/constant you do it a little type in the line of 10H0000 (decimal number) or 70H000 on the Dragon keyboard.

To take then the example CLEAR200 8H0000 immediately after switching on (no disc drive) leaves memory as in figure two.

An advantage of the Address cartridge is that all the space in section (I) (85000-85FFF) — 8000 bytes is available for text/code/data/offsets table and Dream space. Dream on cassette or disc other wise could not be available space. Using say 85K00H and the program started at address 85000 meaning that 85000-850FF (8084 bytes) are available for text

etc. Dream itself forces a space dynamic reply — that is a constant offset from all rules to the use of each of the text/code/data/offsets categories of memory. Figure three is a diagram of the workspace code area (within using 32K DREAM).

Continuing with Dream as the example, on first booting up, type EXEC and reply N to 'Is it memory prompt? Although I am a great advocate of regularly saving source code to cassette/disk it is very useful to be able to flip in and out of Dream retaining all my source code in memory (I try to partly it rather than to have to reload a saved file, refresh each time. On entering Dream for the first time (or after saving it in order to clear old source from memory), you are presented with a blank screen. This is the real source code which you type in and edit source code statements (without line numbers). This starts filling the workspace

memory growing down in memory addressing from the original highest available memory address. (LASC address: 3207=328FF in this example.) The symbols and global areas only come into play when assembly is required—that is, when pressing the function key to assemble the source code currently contained in the last area.

Should the workspace become filled, Dream gives the message FULL, allowing you to quit the program and restore a larger workspace via CLEAR255 (41400) (bringing Dream with it back in memory).

Save the current source text then type backspace to assemble the program. As it assembles the source, the symbols table will be compiled growing down in memory addressing from the end of the last area then the generated object (machine) code is put into memory starting at address 0. The second value of the last CLEAR statement (eg 328FF) of the last CLEAR was 3207=328FF)—an example of using it the PUT directive has told the

Dream to put it elsewhere in memory.

Assuming that the code has been assembled to address 32001 and the example is on the print base/Genter to return to the source (SRC) screen then press base/Genter again to put Dream Now the generated machine code can be saved into the file (CGRAM 0 file name 214001 and address start address is equivalent command).

This article is only intended to be a help to us it is already larger than expected. I cannot add any further real detail. However, if you start running about systems progressively reduce the CLEAR255 address figure. If DM occurs, reduce the number of graphics pages (see our article PGLearn) by a few pictures. PCWs as mentioned on Dragon User (see later) (I read). The 255 in the CLEAR statement could be reduced but I do not recommend it—eg to something below 100. CGRAM001 seems to have the lowest facility to split the source code into and save that can be called from disc for assembling a program whose source code is larger than

could otherwise be accommodated on a Dragon32. Without CGRAM001 it is up to the user to arrange source code and separately assembled fixable modules.

The additional RAM can be used with Dream. I have never required as to whether Dream is relocatable and hoped that it is as it is a relocatable position is concerned but it primarily uses 32K mode. PCWs could be used in 64K mode. As I can discuss other details later (see the technique shown in Dragon Answers from time to time where RAM memory is mapped in viewing the contents of the 32K RAM ROM and cartridge (Dragon-DG44Address) over to the standard addresses in RAM. This will leave 32000=328FF (6554 bytes) free for PUTting object code into leaving more memory space for source code text. I write programs in relocatable position independent code so that they can run unchanged at a lower address and by using the 32K mode Basic ROM routines have Dragon32 and Dragon64 (64K mode) compatibility.

Winners and Losers

Every month
Dragon User will
look at some code programming

With the monthly month comes a letter from Jim Farley of Harford.

I'm knocking on for 67 and had a new touch in a computer twelve months ago. My son then gave me a Dragon 32 for his birthday (thence-to-day). Only with a couple of test books and some games to play, I soon wanted to do more than play games and started on a test book and rapidly got bored because an introduction seemed to be merely a list of output and a few lines of code. I simply didn't have guidance on how to do the things I wanted to do. Turning to the official Dragon manual (it was even more dull and

Another book came and seemed a splendid thing. It gave a series of exercises explaining how I could do. There was only one thing wrong with it then—it didn't work! Even I managed to get some of the bugs but had finally to give up on the thing. I was at the stage that I found that there was a magazine called Dragon User and promptly became a subscriber.

Jim then makes some complimentary remarks about the magazine and on how it should be his introduction about programming from DU then I can say other source. This has enabled me to try some of the competition problems I put in programming contests. I have attempted was at the November puzzle—probably the most tricky puzzle set in recent months. However, with all faults uncorrected. Jim has people taken the more recent game and made a system for his to forward to future challenges.

The difficulty of learning programming (or anything else—no!) from books alone has been a constant feature of readers, letters asking for advice, and I have given hints and tips in past issues. Clearly the ability to program even simple routines with confidence is an advantage not only

in respect of the competition, but for other applications for which commercial software is not available. (Judging from letters are all very well, provided that they do the task you require and that they are themselves bug free.

Books on programming I would recommend to the beginner is:

Easy programming for the Dragon 32 and Further Programming for the Dragon 32 both by Ian Stewart and Robin Jones (John Publishing) and *Programming the Dragon 32* by Peter Laflerty (Newnes Microcomputer Books).

The first book (which was best used as a first copy and merge upon use of the comments outlined in the manual. Each is illustrated with a good amount showing the comments in colour, most of the things being under a dozen clearly printed program lines. Unfortunately these may now be out of print and only be available second hand.

However, if I were to have to choose just one book (with which to be mentioned on a desert island) then my choice would be Peter Laflerty's book. This provides a broad outline of Dragon Basic and is obviously written by someone well versed in the little idiosyncrasies of the Dragon32 which frequently trip up unsuspecting competitors to the competition questions.

On the subject of programming generally, the important thing is to be thoroughly familiar with each of the commands, and usually what each one does, and the result obtained. Once understood in isolation, the effect of combining these commands to build program lines and from there you can soon be readily approached to give an analogy of a photographer

understands the effect of stopping the shutter speed in the camera, and the effect of adjusting the aperture, for instance, in the lens to give him the result that he requires.

Of course, what to look can tell if you are how to translate the task to be performed into a program. This is just a matter of experience in which the Basic commands form a 'toolkit' and it is up to the programmer to select the right tools for the job. The trick of seeing how a problem can be adapted into working logic is the most important bridge between problem and program. The simpler alternative, the clearer the effect becomes. For example, can you devise a short routine which will exchange the values held in variables? Another routine gives two variables X and Y, place the current value of X in Y and Y in X. (These variables are assumed to hold a different value.) If you are unable to see the solution at once you will probably end up with the same value in both variables (the original value having been lost). However, like some problems, is generated gradually with a step-by-step, the solution becomes gleefully obvious: suppose I have a red glass containing white wine, and a white glass containing red wine. The task is to switch the wine so that the colour matches the glass. Clearly a third glass (or bottle) is needed to save the contents of one of the glasses while the switch is being made. Call this variable Z, and the routine becomes

```
Z=X; X=Y; Y=Z
```

Little need be said this month about the January competition, which, judging by the number of entries, provided little of 'hefty'. The only catch is that it is for the ghost character formed by 8149 core hand (see the latest Dragon User April 1988, p. 23).

Data grows on trees

Jonathan Cartwright spells out data storage on the Dragon 32

Listing 1.

```

30 DIM NUMBER(1000)
40 DIM TREE(100,3)
50 GOSUB 1000
60 GOSUB 1500
70 GOSUB 2000
80 GOSUB 3000
90 GOSUB 4000
1000 REM INPUT NUMBERS
1010 LET C=1
1020 PRINT "NUMBER";C
1030 INPUT "ENTER VALUE 1-999 TO END=";NUMBER(C)
1040 PRINT
1050 IF NUMBER(C)=999 THEN C=C+1:RETURN
1060 LET D=C+1
1070 GOTO 1020
1500 REM CREATE TREE
1510 LET TREE(1,1)=NUMBER(1)
1520 FOR LOOP=2 TO C
1530 LET V=NUMBER(LOOP)
1540 LET C2=1
1550 LET V2=NUMBER(C2)
1560 IF V<V2 THEN GOTO 1620
1570 IF V=V2 THEN GOTO 1670
1580 REM GREATER THAN
1590 IF TREE(C2,2)=0 THEN C2=TREE(C2,2)+GOTO 1560
1600 IF TREE(C2,2)=0 THEN TREE(C2,2)=LOOP:C2=C2+1
1610 TREE(LOOP,1)=V:GOTO 1670
1620 REM LESS THAN
1630 IF TREE(C2,2)=0 THEN C2=TREE(C2,2)+GOTO 1560
1640 IF TREE(C2,2)=0 THEN TREE(C2,2)=LOOP:C2=C2+1
1650 TREE(LOOP,1)=V:GOTO 1670
1660 REM EQUAL TO
1670 NEXT LOOP
1680 RETURN
2000 REM SEARCH
2010 INPUT "VALUE TO BE SEARCHED=";V
2020 LET C=1
2030 LET V2=TREE(C2,2)
2040 IF V<V2 THEN GOTO 2090
2050 IF V=V2 THEN GOTO 2120
2060 REM GREATER THAN
2070 IF TREE(C2,2)=0 THEN C2=TREE(C2,2)+GOTO 2030
2080 IF TREE(C2,2)=0 THEN GOTO 2150
2090 REM LESS THAN
2100 IF TREE(C2,2)=0 THEN C2=TREE(C2,2)+GOTO 2030
2110 IF TREE(C2,2)=0 THEN GOTO 2150
2120 REM EQUAL TO
2130 PRINT "VALUE ",V, " FOUND "
2140 GOTO 2160
2150 PRINT "VALUE ",V, " NOT FOUND."
2160 PRINT
2170 INPUT "SEARCH AGAIN (Y/N)=";A$
2180 IF A$="Y" AND A$="y" AND A$="Y" AND A$="y" THEN GOTO 2030
2190 IF A$="N" OR A$="n" THEN GOTO 2210
2200 RETURN
2210 REM DISPLAY TREE

```

THE main topic I intend to investigate is that of trees. Trees normally mean oak trees and Christmas trees, but in computing a tree is a way of storing data. Basic, as such, cannot handle trees, although Pascal can. So what is the use of writing about it? Well, it's a useful technique that can be adopted through Basic and many cases it won't hurt you to know the theory behind data storage.

If you would care to cast your eyes over figure one, you should get the gist of what a binary tree is. Basically, it is a very efficient way of storing and searching data. When the numbers depicted in the tree, they are organised as follows:

- 1) Numbers greater than that in the current node are put to the right-hand side
 - 2) Numbers less than that in the current node are put to the left-hand side
- It has a little confusing, therefore a look at figure two.

Now we come to the important idea of search through the tree. Because of the values higher than that in the parent node are to the right, and all the values lower than the parent node are to the left, therefore an instantly rule out a large chunk of values. If using the example in figure two we are searching for the value 29, then we can instantly rule out all the values less than 10 as it is less than the root. We can then find out if the number is bigger than it is not in there at all. This is a distinct advantage over normal searching procedures where we would have to search every value. If we either a small number of values or found the value that we were looking for. Using the tree in small amounts of data you will not notice any great increases in speed when searching. However, when I originally wrote the program on a mainframe, it was able to enter vast amounts of data. When searching such large amounts of data, you will notice a great improvement.

At this point I would want to apologise to give you a program that is not Listing one in that program.

The program simulates a binary tree in Basic. It will allow you to enter up to 999 numbers into the tree, and subsequently search it. I have grown the tree as a two dimensional array, TREE(100,3). The 100 is the amount of search that you can put

```

3010 FOR N=1 TO C
3020 FOR V=1 TO 3
3030 PRINT TREE(N,V);
3040 NEXT V
3050 PRINT
3060 NEXT N
3070 RETURN
4000 DIM END
4010 END

```

1000

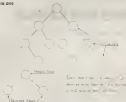


Figure 1

List of countries in order

- 13 The first value is always the parent node

1. *Journal of the American Medical Association*, 1997; 277: 1001-1005.

[illegible]

1000



Table 1

Element in	Value	Less than point	Greater than point
1	93	0	4
2	8	7	3
3	80		
4	14	0	0
5	20		0
6	11		-
7	4	10	0
8	6	-	-
9	18	-	-
10	21	-	-
11	3	-	-

The pressure
within the
inflated balloon

Figure 1. Study design.



The method [1] is to let agents be too noisy, i.e. to generate their \hat{a}_i outputs using only one layer (and to assume for the first model state zero). The world model in this model is 1:1, i.e. having 74% of total states (i.e. 100% states) in the first step. There is no model for the next step, and the subsequent model would over estimate the

In the tree, the 3 takes a little more attention. The final value is the number itself. The empty is the first then point and the first is the number then empty.

So what have I seen these problems to do with anything? I hear you cry. Well you know that values less than the current value go to the left in the tree, but the Dragon does it. You must tell it, and that is what the Dragon does for you.

The periodic table's Dragon theme is not as obvious as the current one is in a particular place in the story. The current one

pointers work in the same way. Again this may be confusing, so for all those completely stumped by pointers refer to [Figure 3](#).

you now know how to search in binary trees, so how do you decide when to begin with? This is very similar to searching. The only difference is that if the required value isn't contained here you go to either the next taking into account whether it should go to the left or right. Figure 10-9 is presented for those in doubt.

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1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26



and you'd think that it is a particularly useful program. However it demonstrates the principle of team, and it may come as a relief.

To demonstrate how these can be used on a IBM Dragon, I'm going to give you a more useful program which is in fact a useful example.

If I need to store a large number of words in the confines of my Dragon 38, I would be rather stupid if I tried to store each word in a separate string. Why? Well, strings take up a lot of memory and are inefficient if I have a lot of strings. So how am I going to do it? Well, I'm going to use an array tree. What is an array tree?

Each node of a binary tree may have up to two daughters. In an early tree, each node can have up to four daughters, where n is any number. Illustration Figure Five of this report.

[illegible]

[illegible]

Figure 10a

```
graph TD
    P((P)) --- A((A))
    P --- E((E))
    E --- I1((I))
    E --- I2((I))
    I1 --- D((D))
    D --- B((B))
```

Legend:

- Category (circle)
- Sub-category (square)
- Sub-sub-category (triangle)

The three medals that this is the end of the world it is one of our special for members. The knowledge is that the world is

And now for the ratings! Yes, this PC line listing ended listing two as my split check! And you all thought I would be a no more job, did I not? Well, this shows

At the moment, the program allows words of up to twenty letters in length, although this can be altered. memory permitting. If the word that you are looking for isn't there that you are given the option of adding it. You might like to try loading the program to load in your word processed file and let you know which words are not spelt correctly. I've not done that because it is too easy to have it. I got the time and it is a waste of the machine for Economics students that all of you with Windows will tell me too. richard@vax.uva.nl

Ken Smith introduces BT's Special database

Figures: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839,

anyway. All this time I knew that all the local access numbers were listed on Phased but would only be available to me once I had made contact. Eventually I found what I was looking for by logging on to a bulletin board pleading for help.

That was how my immediate relationship with Britain's big gas database began. A lot of data has flowed along the two pipes since. I have not become

Information is displayed in the form of pages on a windows system which allows the use of text and graphics on the same page. Unfortunately as designers have to be content with a monochrome display since only PICO-16 gives a high enough resolution. To be sure of using a local number you will need a VISA (PICO/16) modem. VISA (PICO/16) is being phased in.

Screen Compressor

Jonathan Cartwright squeezes screens into smaller spaces.

HAVING seen screen compressor programs on much larger computers, I saw the Dragon I decided that it might be a good idea to write one. I'm surprised that there isn't one on the Dragon, as even if you're only got 32K, let alone 64K, let alone 128K, it's a large chunk of memory to waste.

Before I start writing a program, it might be a good idea to explain how a compressor works. Generally speaking, there is quite a lot of blank space on a graphics screen. Obviously, there is less if your picture is complex. This vast amount of data is very wasteful on memory. For example, you could draw on the top half of the graphics screen, and I would still take up 64K. What my program does first is to read the screen. What it is looking for is a collection of bytes, one after another which are the same. If it doesn't find such data, then it merely stores the screen byte for byte elsewhere in memory. However, if it DOES find what it is looking for then it can get to work. What it does is store a dummy or repeat value to signify that the next few bytes are the same compressed data. That is,

any value it sees is the number 255. After this it places the value of the bytes which are the same. After that it places the number of bytes which are the same.

The compressed screen is placed elsewhere in memory so that it can be called up or de-compressed later. I have made the screen be stored at location 25600 onwards, but you can put it anywhere you like as long as you CLEAR space and it fits the programs accordingly.

The compressor program is written in Basic. This is partly for my convenience and also because the program is easily readable. Once you've typed it in, LOAD up the screen you wish to compress. Then RUN the program. It will alter quite a long time, tell you the start and end addresses of the compressed screen, along with the percentage saving and the length of the screen in bytes. Because I use a video drive I have defined the top of the graphics screen as location 3200 and the bottom as 1 as 32768.

To use the program without DOS alterations, subtract 1536 from these values.

Remember to alter the machine code decompressor too.

The final program is a machine code sub-routine which does the job of putting the screen back together again. Again, I ensure that the compressed screen fits at location 25600, but this can be altered to suit your requirements. I have located the routine at 32416, but you could put anywhere you like. The routine simply EXCHG the screen.

If you want to get adventurous then you could store several screens at different locations in memory and use a slideshow. This would simply involve changing the start location used in the machine code before calling up each screen.

The compressor program can make some fantastic savings. Although I have sometimes got savings of as little as 4 per cent. My latest total now takes up nearly half the space I used to, and I have compressed screens 10 days instead of 100 days. In fact, instead of 100 days, I can save memory there as well. I hope that this program is of use to people.

```
4 IF C=JAN,255:GOTO 1
5 PER 400:REM 4000000000
6 PER 400:REM 4000000000
7 PER 400:REM 4000000000
8 PER 400:REM 4000000000
9 PER 400:REM 4000000000
10 PER 400:REM 4000000000
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97 PER 400:REM 4000000000
98 PER 400:REM 4000000000
99 PER 400:REM 4000000000
100 PER 400:REM 4000000000
```

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30	ALL	50	FM	4000	ATBO	1200	BOSSP	ETA	1
3400		40	DRG	9018	3410	ISA	1300	DRCH	
3450	BOYXND	50	LST	83070	3414	CI100	1400	CMPO	40
3460	BOBBSTT	60	LST	836100	3418	30279	1500	MMO	8010P
3470	ALAD	70	WSTB	100	3419	20000	1600	ISA	8000P
3480	STTT	80	CMPO	8200	3421	810400	1700	8000P	01A 10
3490	2000	90	MNO	800000	3427	2000	1800	8000P	01A 10
3490	ALAD	100	ISA	10	4010	30	1900	8000P	01A 10
3490	ALAD	110	LST	10	4020	30	2000	8000P	01A 10

Get It Up
SunFire

28 Tynan Road, Chislehurst, Kent, DA2 7AF.



The above laptop has a speed rating of 47.45

Relig-
Ball

Relig-
Ball



Relig-
Ball

By Relig Ball screen reader's a portable 28.5k saving

Continued from page 10

will be already available on many networks where 1000 is available the system will automatically adjust to match your equipment so the only way to find out is to try. The system is so easy to use it's easy to get lost so much so that it's not necessary to provide a directory listing all the information providers (PIs) as they are called. When a system this big is largely menu driven then it can take a long time to get to where you want to go so there has to be a way of taking short cuts. This is normally done by entering the relevant page number. Now a page number has eight digits and if you enter less, then the system simply adds enough zeros to bring it up to eight. Of course you can always look up the number in the directory but would it be much easier to enter "TRAIL" for the trailer facility or "reader" for the Mail Office?

Prestel was originally conceived as a business database. However, the rapid and rapid growth of the micro computer changed that. A whole

new market appeared and it was decided to expand the network to exploit this. There are now bulletin boards to cater for a wide variety of interests, many of them having nothing to do with computers. For instance, one section deals with pop music and allows you to have your say. If you think Rock Action's records are a pain in the earholes then you can say so and let us put your views to all to read. Send us a (no-funny business) - 100 have then one account known as Sir mail where they can publish matters pertaining to the hearing impaired. I have even found a religious section run by Christal and you can look looking for contacts at 1000000.

Game changes

Most of the games available on the system are charged for in addition to the subscription and line charges. Shades is multi user dungeons game, for instance, costs at least 10p per minute. Many of the games and software offer own prices

but it is my experience that they are more designed to take your money than to entertain.

Working as I do, at the sharp end of a service organisation, anything that I find most useful is the sales link. Most companies have a sales machine and using this system, my company can have the sales work and I can call it off at any convenience. Where do you keep your Gregory? I can send my reply (if necessary) and will be waiting for them in the morning. This link is part of Mailbox, the electronic mail system. This was apparently included as an after-thought. Perhaps this is why it is a bit crude but it's a useful way of keeping in touch with a client and trying to get a better rate of 70 minutes can be perfectly fine.

Subscribing to Prestel will set you back 1000 a quarter. This gives you the peace of mind and you will see it is not too bad value for money. During peak usage times, it's 10p to 15p, there are additional charges of 50p per minute outside these times there are no time

charges. There are additional charges for some services but there is adequate warning before you incur any additional cost. To get a real taste there are free demonstrations available on the numbers listed below. When prompted for your ID number enter 444444444, then for your password use 4444. This should get you started, so why not give it a try. It will only cost you a phone call.

Finally listed below are numbers that are supposed to give the demonstration. At the time of writing the only one that does not work is the London number if you live in the south and cannot get any joy then try 0207 458400. Send it to me and if you do subscribe, why not give me a Mail call 10000000 and tell me what you think.

Prestel access numbers

South (01) 645 1111
Midlands (021) 655 1111
North (011) 616 1111
Scotland (041) 616 1111

Copy to order

Rudy Duyck presents a versatile file copying program for Dragon Data and Eurohard DOSsies.

COPY is a utility to copy any number of files or any number of files from one drive to another and works with all Dragon Data and Eurohard DOSsies, including Super DOS. It is written in Basic with one very short machine code routine (forbidding) used to speed the screen clearings and stored stringtable in line 15 (sampled data in line 1800). Because of this it is possible to use the program on 16 words with any form of high resolution text screen. COPY makes its own directory of the source disc and offers you the options of copying all files, a number of selected files or all files except for a number of selected files. Selection of files is straight forward through the use of a cursor positioned with the up and down arrow keys. The order of copying files can be determined by the too many file selection needed to enter this program at Eurohard Software Dependence. A few comments: Copy. If you want to understand how COPY works, as each directory you will also find excellent instructions in Paul Dugan's article in the Developer the May 1988 issue of Dragon User.

The COPY utility will ask you to enter the number (1 or 2) of both the source and the target drive (drive). These must be different. It is unfortunately impossible to copy files from one disc to another using any other drive under DragonDOS. After entering given the information COPY will access the source disc and create its directory in the array RAM. Only valid files will be included.

When done with the directory list is shown found by checking for the end of directory flag in line 150, the Dragon products (the DOSsies) convert you and give you the option to copy all files, select the files you want copied or exclude files you do not want. How you are asked whether you want all the files copied to be preserved. The if effect option also selected if you press ENTER and indicates either true or false. If you selected the second copy option you will now be able to determine the order in which files are to be copied. With both the second and the third options you get the list screen of the directory and a cursor which you can use with the up and down arrow keys (before entering). You select the files by pressing the space bar and you end the selection process and begin the copying with ENTER. Pressing **?** will

erase all the selections you have made so far and enable you to start all over again if you have made a mistake. The screen will scroll up or scroll down as needed.

After the copying is done you are asked whether you want to copy the same files once more to copy different files from the same disc, to copy files from a different disc, or to stop. If you want to copy from the same disc the program saves time by using the directory already in memory. All the copying takes place in one go and COPY will warn you with three BEEPs when it is finished so that you can do something else during the copying (it does not take very long, though). About any error (except a DOS or DIR/DIRTY FILE error) about the copying ends and you get an error message. If the error occurs because the target disc is full (OF error code 145) or because its directory is full (FD error code 146) you will be asked to insert a new disc for the other files to be copied onto. The most likely error probably occurred if the disc is full to down up the full target disc.

You can use COPY as a better alternative to BACKUP. It is possible in all versions of DragonDOS after 1.0. They are slower if by using a disk formatted disc as target drive and selecting the copy all option. The reason of this is because of the backup between different disc formats. It takes me how the standard Dragon Data disc drive unit with a higher capacity drive added (in my case a double sided 4000 track unit, double drive) this can work quite handy. It is also possible to have all files protected in one go.

COPY enables you to re-organise discs by copying files from one clustered disc to a newly formatted disc in a different order than it was chosen to copy the files in the same order as on the original disc you should be able to save space because clustered discs are not especially frugal in their use of space. You may wonder why I have not built in an option to sort file names alphabetically. The reason is very simple, I do not see the use of this since quite often a particular software package consists of several programs or includes data files and all of these need end up clustered wherever the disc and the directory if you sort the files alphabetically in this way the logical connection between the various components of a package would be lost.

It is easy to merge reading discs onto a main one using COPY too. A final use for this utility is for people, eg members of a computer club, who want to distribute programs they have written to a number of fellow members or who want to calculate their calculations on disc for some clubs etc. You can do this for more easily and in a less time consuming manner with COPY. Because the program allows you to copy the same items time and again.

For those Dragon users who are interested in the way COPY is programmed let me draw attention to a number of features which may provide a surprise for your own programs. The routine in line 150 to 1800 to produce a directory can quite easily be copied and adapted to your own programs that access the source disc files, eg to list, rename or delete programs or create. The routine in line 1810 to 1870 checks for keys being held down without using the ENDG. The major advantage of this use of the keyboard will over time release memory problems in that the large subprogram A/and B/and C/and D/and E/and F/and G/and H/and I/and J/and K/and L/and M/and N/and O/and P/and Q/and R/and S/and T/and U/and V/and W/and X/and Y/and Z/and 0/and 1/and 2/and 3/and 4/and 5/and 6/and 7/and 8/and 9/and 10/and 11/and 12/and 13/and 14/and 15/and 16/and 17/and 18/and 19/and 20/and 21/and 22/and 23/and 24/and 25/and 26/and 27/and 28/and 29/and 30/and 31/and 32/and 33/and 34/and 35/and 36/and 37/and 38/and 39/and 40/and 41/and 42/and 43/and 44/and 45/and 46/and 47/and 48/and 49/and 50/and 51/and 52/and 53/and 54/and 55/and 56/and 57/and 58/and 59/and 60/and 61/and 62/and 63/and 64/and 65/and 66/and 67/and 68/and 69/and 70/and 71/and 72/and 73/and 74/and 75/and 76/and 77/and 78/and 79/and 80/and 81/and 82/and 83/and 84/and 85/and 86/and 87/and 88/and 89/and 90/and 91/and 92/and 93/and 94/and 95/and 96/and 97/and 98/and 99/and 100/and 101/and 102/and 103/and 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outline. After that, she'll come to the water a brief and simple adventure by my star channel. Okay, perhaps the ship is a little big (maybe), but there are all kinds of little things that particular category at times. I am told that someone else is supposed to be early, because they'll say "I know I see the game and"

This implementation's master/slave design led to the following major design decisions:

I was told that the adventure features a "FAST" command that gives a list of verbs used by the game. Good idea. Such words as "verboses" & "nois" are quoted along with the author's comments, rather nice additional information have been doing it for years, albeit not on a Discard.

Another quote: "Dang it, this question is prompted by 'Who should I kill?' and only one response works! If there is anything that I hate more, someone's going more than anything else it is the stupid death scene. So, it is so god-damn. Adventure is meant to be a test of a person's logic and perhaps basic thinking and to find yourself being killed off for no apparent reason other than that the person cannot. Understood a particular sentence about last episode he is the winner. One response is an actual death. Mustn't come on. There are better subjects to be made. Not too."

It all spins again. Two more areas exist, the two around the main. The main mainly mapping as it has loads of failed and failed and failed (all the words are) and then going like I think I think I think I think of the best of times but can see their point in a well-ordered adventure and have indeed spent many an evening here working my way through an especially difficult maze. However, find areas: no extra maze holder? An easy way of quick processing is difficult, so...

2000

[illegible]

If you (or for that matter anyone else) would like a game reviewed here, then please send me at least a partial map and another, well-detailed across all columns, space for 10-painted-on-puzzle-unit and above all, don't cheat!

And now that I've got all that off my chest, I shall climb down from my pedestal, arrest and somewhat sedate the face, continue with the Adventure Trail.

Last month's copy featured songs for comic relief from *She Who Must Be Obeyed* (OK OK) (epitaphs?) Most time to a clear analysis it is a thoughtful more than two poetry poems? Please! Yes, we shall have nothing less than the full isolation courtesy of the admirable Martin Edwards and Michael W. Brown.

1) Get the pole (is shown) and GO POOL. (Swim, get liquid (mercen)) and C. R. L. O.G. get the small key. S. O.G. again and GO HOLE. Unlock the door then swim U again. Drop the shovel get the stone. Unlock the main door and go in then drop both keys and light the flashlight. You've won the Princess of Doom.

None will stop phosphate from getting the regulatory green.

F1 D and LOOM RUBBISH them look at the explorer too. Get the PIN and the CARTRIDGE then go W and D. Drop the cartons and exit the cave.

4 1/2 H, 1 1/2 H. See table. drop row and get NECKLACE E and go away. Drop the tapestry back, necklace put on and row and away. Go on and on.

05 W get say 05 get say get say 05 say
 05 say 05 05 go leader 05 go move and
 05 get the chest 05 get the CROWN 05 take
 05 chest 05 take 05 take, 05 go new new
 05 go new 05 go get both say, Look
 05 go and get the BRACELET 05 say
 05 say 05 W 05 05 05 N 05 go to
 05 and get 05 05 05 05 05
 05 and get the SCARF 05 W 05 light
 05 light 05 05 W 05 05 go with 05
 05 say, 05 say, 05 say, 05 say

Abstract

Adventure made

And there you have it: cheap and cheap prices, the complete solution to involve turn that conjures up some rather obscure problems at times, but all should now be revealed in order to enable you, to life every another game as completed.

[illegible]

End of space as usual. To the unnamed person who sent the game in for review: I despise Tothel person, and the rest of you, but for now.

[illegible]

8) Within H and drop the jelly. The center will eat the jelly, dropping a pearl so you should get the PCARL, go to step 6. Drop pearl W H and also you should drop the Blue team too.

4) Go to 3 and go *antoghe-gu* 3 clear the tool (it is safe) but let it measure (nail) and pour water to distinguish burning leaves. Now you can get the *14000TH* Go above look box look box (yes repeat) and get their mortgage. Get the *swallowtail* source in: *Go on 14000 14000TH*

1400 ft. and approximately 100,000 ft. and over the globe. You'll probably stop it (usually twice) you need to pick it up and to meet it. It'll accompany you through the globe.

As the rope unspools it goes back to its original position. This rope is attached to the ceiling to hold you off the ground and lower you to the

A lifetime in 48 days

How long to make your first million? asks Gordon Lee

Pr 13

Also used to help promote Orange Unit, members have been active in the new Home from Orange, and other activities of the unit.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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...and the life insurance — he on yours & thought I wouldn't have time to think of a receipt! Let's think. Everybody has a Mutual Number. Or an Unfamiliar Number. Tell us about your favorite tag number, 101 number. The without one gets

April winners

TRICAT and the Humber a lot further south, and it is a very different scene. The water is very calm, and the sky is very blue.

[illegible]

Some of the leaders were in place, a good life for certain. I observed that the last ones were mostly, more or less, "Don't know, right after all?" But if the are used, the blindness is a perfect fit for the system.

The Editor said: They'd like their digital caters flowers disappointed. I thought it was odd. They're likely to think better if you were disappointed. So head off with the same old.

For more information, contact the publisher at 1-800-354-9700 or visit our website at www.mhhe.com.

Commanding to everyone who says
glad hands, and everyone who stands
in the line says the Lord is good.

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Solution

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WHEN the Dutch mathematician © Hardy called on the Indian mathematician genius Srinivasa Ramanujan to report he has conjectured that the number of natural $12N$ was not a very interesting one (not a "highly Ramanujan" $12N$), the smallest number expressible as the sum of two cubes in two different ways.

While not suggesting that this is typical of encounters between mathematicians, I share Hersh's view that some numbers are more interesting than others. But what exactly constitutes an "interesting" number? Can any number be said to be uninteresting? Of course, answers need not be interesting purely in a mathematical sense. No doubt we all have a personal "top ten" of favorite interesting numbers — even if they are only those we see both in the natural world

Arithmetic has lower numbers if it is not delimitated in association with any given number. For example, the number 1 in the biochemical might name the sixth amino acid, and hence the basic element structure of the peptide. In the historian, that same number might compare our thoughts of the 14th versus 15th century B.C. or even the 14th of January while the biologist would identify it as *Leu-5*—a group of 14 amino acids with their own distinctive style. The mathematician would undoubtedly note that 6 is the smallest perfect number—its prime arithmetical numbers (divisors) 1, 2, and 3 also add up to its given value.

But what about "interesting" numbers? Are there any of those? Let's suppose that we think a lot of all numbers starting at 1 and progressing upwards. On the left-hand side of this page may well be the "interesting" numbers. This infinitely ordered sequence would be fairly extensive. Sooner or later we would come to a number which dispels all our attempts to find some interesting aspect about it, so we would be unable to do. Suppose that 1746 number is 103 764 (this has already placed 103 764 on the left-hand list of numbers). Interesting next is the smallest number of bytes that it is to be written in 10376, such as 114, six and thirty. Origen (Ptolemy) by placing this number on the right-hand list it now becomes interesting, as it is the first number to appear on this side. This compels us to consider that it is often an interesting sequence to obtain from the right and place it on the left side of a page. This leaves the right-hand list record only a figure – at least until the next number is placed here, when it will need to be transferred. Thus, by the logical (or stochastic) process all numbers become interesting – no matter how small you care to go.

Mention of high numbers reminds me of history. Supposedly four pharaohs can reach what had to have been a very impossible to count up to one million or a

for millions of people upon the market of which his pupils proved him wrong, yet without doing it but after producing the results he had foretold. This, presumably, was a hundred fold more than its weight, and even so allowing for a space between each number, there would be nearly seven million typed characters in the first lot, occupying 1,000 100-page-sized sheets of paper. Even at the typing speed of five characters a second, working 16 hours a day and allowing no time for thought, the task would take about 48 days. If you have a computer, no need print paper to spare, no doubt the computer could do the job in a fraction of the time.

It would be interesting to speculate the size of the task if the jobs were typed out in the form of sheets — at beginning case two, three, four, and continuing up to nine hundred and ninety nine thousand nine hundred and ninety nine one million. A conservative estimate would indicate that this would require 80 million characters — an increase of almost 10 fold on the figure given above!

The main part of the competition is to devise a simple program to convert a number input in digital form into its word equivalent. The routine should be capable of handling numbers of up to nine digits — ie, in the range 1 to 999,999,999. So if the number input was 155444444 the printed display would read

ONE HUNDRED AND TWENTY THREE
MILLION FOUR HUNDRED AND FIFTY
SIX THOUSAND SEVEN HUNDRED
AND EIGHTY NINE

Listeners will be judged on compactness and their ability to produce reasonable English phrases for the range of numbers specified.

Finally, the answer to Grover's Paradox is a problem given earlier as 12 cubes, or 12 cubed plus 1 cubed. Both add up to the same total, 1729. Readers who are interested might like to try out the following: Is it possible to compute this answer if the program is left running? It will produce a number of other values greater than 1729 that are also the sums of two cubes or two different ways.

```

30 A=3
20 FOR B=0 TO 4
30 T=A+A*B+B*B=B
40 FOR C=0 TO A-1
50 IF C=B THEN GOTO 70
60 I=B-C*B=C
70 B=INT(1/2*(B+I))
80 IF B=C THEN
PRINT A;"B=";"C=";
;"T=";"I=";"B+C=A
90 NEXT C
100 NEXT B
110 A=A-1:GOTO 20

```

The Answer

This is Quaker Life, its own
 solution to the Agribusiness
 problem that exists.

As highlighted in *“The Global Impact of the COVID-19 Pandemic on the U.S. Economy”*, the U.S. economy is projected to experience a significant decline in GDP, with a potential loss of 10% or more.

Solution: In the listing the values of each of the possible combinations of assets is determined by C05, C06 (the first two) ranging between 0 and 100 (the Control Cost 5 is a C05).

The three FORMECTIONS of lines 82 to 83 represent cells Q10, Q11, and Q12. Once Forme have been given values, cell Q13 can be calculated and we are told that Q13 and Q14 have the same value as Q10.

and CO₂. Photovoltaic CO₂ fluxes in the range 1 to 12 g m⁻² h⁻¹ are calculated on the basis of leaf to EC calculations of the amount of CO₂ as an index that the system and its neighbours total the same as CO₂ and the words either side of it. Age in this must be in the range 1 to 10. The next step is to test the total of all six words in a range of situations not mentioned in 23.

The said information is in as there is only one pair of needs will be not meet less 100 to 100 check each card against each of the others to count the number of pairs.

We then test to see if there are any pairs in the current values. Note that at line 210 we only reject sets of values in which there is no zero. The information as given does not exclude the possibility that there is a set of ones.

If the program is run it prints out a series of different values. However the final line states that if you know the value of `clang` you could find the answer. Clang are done (when `X` is a four digit) then the result is a unique answer. For any other value of `X` there would be more than one possible `Y`.

[illegible]

Communication

While there are a number of factors that can lead to a child's emotional and behavioral problems, the most common are: family conflict, divorce, parental remarriage, and parental mental illness. The most common cause of emotional and behavioral problems in children is family conflict. This can be caused by a number of factors, including divorce, remarriage, and parental mental illness. The most common cause of emotional and behavioral problems in children is family conflict. This can be caused by a number of factors, including divorce, remarriage, and parental mental illness.

Parameter	Value	Unit
α	0.01	
β	0.01	
γ	0.01	
δ	0.01	
ϵ	0.01	
ζ	0.01	
η	0.01	
θ	0.01	
ι	0.01	
κ	0.01	
λ	0.01	
μ	0.01	
ν	0.01	
ξ	0.01	
\omicron	0.01	
π	0.01	
ρ	0.01	
σ	0.01	
τ	0.01	
υ	0.01	
ϕ	0.01	
χ	0.01	
ψ	0.01	
ω	0.01	

(continued)

Adventure Contact

To help you control cholesterol, we've put this information right on the label. It's the cholesterol facts. And it's yours to share. So please, share your problem and your heart with a doctor, and read the Cholesterol Facts. Because together, we can keep your heart healthy. For more information, call 1-800-541-5414.

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